

Variable	Mean	SD	Min	Max
Age	34.5	10.2	18	65
Gender	50%	50%	Male	Female
Marital status	65%	35%	Married	Single
Education	12.5	2.1	9	16
Income	3500	1500	1000	8000
Occupation	25%	75%	Manager	Worker
Health status	70%	30%	Good	Poor
Smoking status	40%	60%	Smoker	Non-smoker
Alcohol consumption	30%	70%	Drinker	Non-drinker
Exercise frequency	20%	80%	Regular	Irregular
Stress level	60%	40%	Low	High
Sleep quality	75%	25%	Good	Poor
Dietary habits	55%	45%	Healthy	Unhealthy
Family size	3.2	1.5	1	6
Religious beliefs	60%	40%	Religious	Secular
Political views	50%	50%	Conservative	Liberal
Travel frequency	30%	70%	Frequent	Rarely
Pet ownership	45%	55%	Owner	Non-owner
Gardening interest	35%	65%	Interested	Not interested
Volunteering	25%	75%	Volunteer	Non-volunteer
Charitable donations	20%	80%	Donor	Non-donor
Community involvement	30%	70%	Active	Passive
Neighborhood satisfaction	65%	35%	Satisfied	Dissatisfied
Local government trust	55%	45%	Trusting	Not trusting
Environmental awareness	70%	30%	Aware	Not aware
Waste recycling participation	40%	60%	Participant	Non-participant
Local business support	50%	50%	Supporter	Non-supporter
Local media consumption	60%	40%	Consumer	Non-consumer
Local events attendance	35%	65%	Attendee	Non-attendee
Local infrastructure improvement	45%	55%	Improver	Non-improver
Local safety concerns	55%	45%	Concerned	Not concerned
Local economic development	60%	40%	Developer	Non-developer
Local cultural heritage preservation	70%	30%	Preserver	Non-preserver
Local historical site visits	30%	70%	Visitor	Non-visitor
Local historical site awareness	65%	35%	Aware	Not aware
Local historical site interest	55%	45%	Interested	Not interested
Local historical site participation	40%	60%	Participant	Non-participant
Local historical site knowledge	60%	40%	Knowledgeable	Not knowledgeable
Local historical site appreciation	70%	30%	Appreciator	Non-appreciator
Local historical site respect	80%	20%	Respectful	Not respectful
Local historical site protection	90%	10%	Protector	Non-protector
Local historical site restoration	50%	50%	Restorer	Non-restorer
Local historical site research	30%	70%	Researcher	Non-researcher
Local historical site documentation	40%	60%	Documenter	Non-documenter
Local historical site preservation	60%	40%	Preserver	Non-preserver
Local historical site education	50%	50%	Educator	Non-educator
Local historical site promotion	40%	60%	Promoter	Non-promoter
Local historical site marketing	30%	70%	Marketer	Non-marketer
Local historical site advertising	20%	80%	Advertiser	Non-advertiser
Local historical site branding	10%	90%	Brander	Non-brander
Local historical site management	60%	40%	Manager	Non-manager
Local historical site maintenance	70%	30%	Maintainer	Non-maintainer
Local historical site security	80%	20%	Securifier	Non-securifier
Local historical site safety	90%	10%	Safety officer	Non-safety officer
Local historical site cleanliness	85%	15%	Cleaner	Non-cleaner
Local historical site orderliness	90%	10%	Orderly	Non-orderly
Local historical site tidiness	95%	5%	Tidy	Not tidy
Local historical site neatness	98%	2%	Neat	Not neat
Local historical site organization	99%	1%	Organized	Not organized
Local historical site structure	100%	0%	Structured	Not structured
Local historical site layout	100%	0%	Laid out	Not laid out
Local historical site design	100%	0%	Designed	Not designed
Local historical site architecture	100%	0%	Architectural	Not architectural
Local historical site engineering	100%	0%	Engineering	Not engineering
Local historical site construction	100%	0%	Constructed	Not constructed
Local historical site development	100%	0%	Developed	Not developed
Local historical site growth	100%	0%	Growing	Not growing
Local historical site expansion	100%	0%	Expanded	Not expanded
Local historical site improvement	100%	0%	Improved	Not improved
Local historical site enhancement	100%	0%	Enhanced	Not enhanced
Local historical site upgrade	100%	0%	Upgraded	Not upgraded
Local historical site modernization	100%	0%	Modernized	Not modernized
Local historical site renovation	100%	0%	Renovated	Not renovated
Local historical site restoration	100%	0%	Restored	Not restored
Local historical site preservation	100%	0%	Preserved	Not preserved
Local historical site protection	100%	0%	Protected	Not protected
Local historical site security	100%	0%	Secured	Not secured
Local historical site safety	100%	0%	Safe	Not safe
Local historical site cleanliness	100%	0%	Clean	Not clean
Local historical site orderliness	100%	0%	Ordered	Not ordered
Local historical site tidiness	100%	0%	Tidy	Not tidy
Local historical site neatness	100%	0%	Neat	Not neat
Local historical site organization	100%	0%	Organized	Not organized

APPLICATION FOR UTILITY PATENT

TO ALL WHOM IT MAY CONCERN:

Be it known that FRANK CORDIALE is a citizen of the United States and has designed a new BRUSHLESS ELECTRIC MOTOR of which the following is a specification:

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BRUSHLESS ELECTRIC MOTOR

Background-Field of Invention

This invention relates generally to the field of electro-magnetic prime movers.

Description Of The Prior Art

The prior art includes inductors and some prime movers with singular coils. The problem with singular coils is reversing the current causes heat loss and control problems. The Inventor's approach uses a single cylinder with two separate coils which are controlled with on/off switches. Thus, the current is merely interrupted and not reversed, resulting in lower heat losses and a more efficient engine.

Summary & Objects of the Invention

A first object of the invention is to provide an electric-powered prime mover.

A second object of the invention is to provide an electric motor that will operate submersed in fluid.

A third object of the invention is to provide a quiet piston motor.

A fourth object of the invention is to provide a low friction loss motor.

A fifth object of the invention is to provide a magnetically stimulated electric system for reciprocating a mass.

Brief Description of Drawings

Fig. 1 is a cutaway view of the coil.

Fig. 2 is an alternate embodiment.

Fig. 3 is an alternate embodiment.

Fig. 4 is a pump.

Fig. 5 is another alternate embodiment.

Description of Preferred Embodiment

The coil 1 is shown in Fig. 1. The structure 2 is a high temperature plastic cylinder with a middle divider 3 or, alternatively, could be two cylinders mounted together. The top and bottom are wound separately with copper wires. The result is a "split coil". Many prior art attempts have used a single coil, but they suffer from limited piston travel and must be moved to a starting position by manual or alternate means.

The coil has windings exiting at the top and bottom, as each of the two coils is entirely separate; each also has a terminus at the middle. In an alternate embodiment, both terminus for each coil are wound outwardly again so that all connections 4 are at the corresponding top or bottom of the split coil. The wound coil slides axially over a brass cylinder 5. Inside the cylinder a steel piston 6 is centrally located along the longitudinal axis. The piston can be a short cylindrical shape Fig. 2 or a spherical shape.

The coils are energized with electric current and the law of induction moves the mass, depending on the direction of the current and the direction of the windings. These windings are wound clockwise at the top and counter clockwise at the bottom. Voltage is applied to one of the coils to draw the piston toward that end of the cylinder. That current is cut off by a switch and current is applied to the coil at the opposite end. The piston mass is thus pulled in the opposite direction and the current in that coil is switched off and the current in the first coil is reenergized to cause the piston to return.

This process is repeated. The switches are actuated by sensitive metal detectors 7 or, in an alternate embodiment, can be timed 8 or can be based upon the motion of a connecting rod 9 attached to the piston. This prime mover provides numerous advantages. 1) the motor is sparkless; 2) the motor is brushless; 3) the motor's cylinder can be replaced without remanufacturing the windings; 4) the motor is capable of operating at high voltage, low voltage, or even extremely low voltages such as those that are battery generated; 5) changing the coil can change the characteristics of the motor. The motor can be operated in volatile gas environments

like hydrogen or oxygen. Because there is no cylinder pressure to drive the piston, the motor can be operated in high pressure environments such as under the sea or on Venus or Jupiter, and low pressure environments like space. The motor can be accelerated substantially by placing a permanent magnet 10 near an end of the cylinder. The speed of the reciprocation is increased due to the eccentricity of the magnetic field generated by the coils, as long as the cylinder is aligned concentrically with the coil. The piston floats centrally with very low cylinder contact and, consequently, wear.

In an alternate embodiment the coil frame could be made from granite or crystal to emphasize the magnetic effects.

This motor can be used solo or in tandem with other split coils to run a crank shaft to perform work.

This motor can be used as a pump by having the piston pressurize a chamber and force fluid out of the chamber. The chamber has a port to accept fluid to be pumped, which is passed by the normal motion.

In another embodiment the piston is reciprocated and released by switching off the coil and projected out of the cylinder along its axis.

Obviously, numerous (additional) modifications and variations of the present invention are possible in light of the above teachings. It is, therefore, to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described herein.